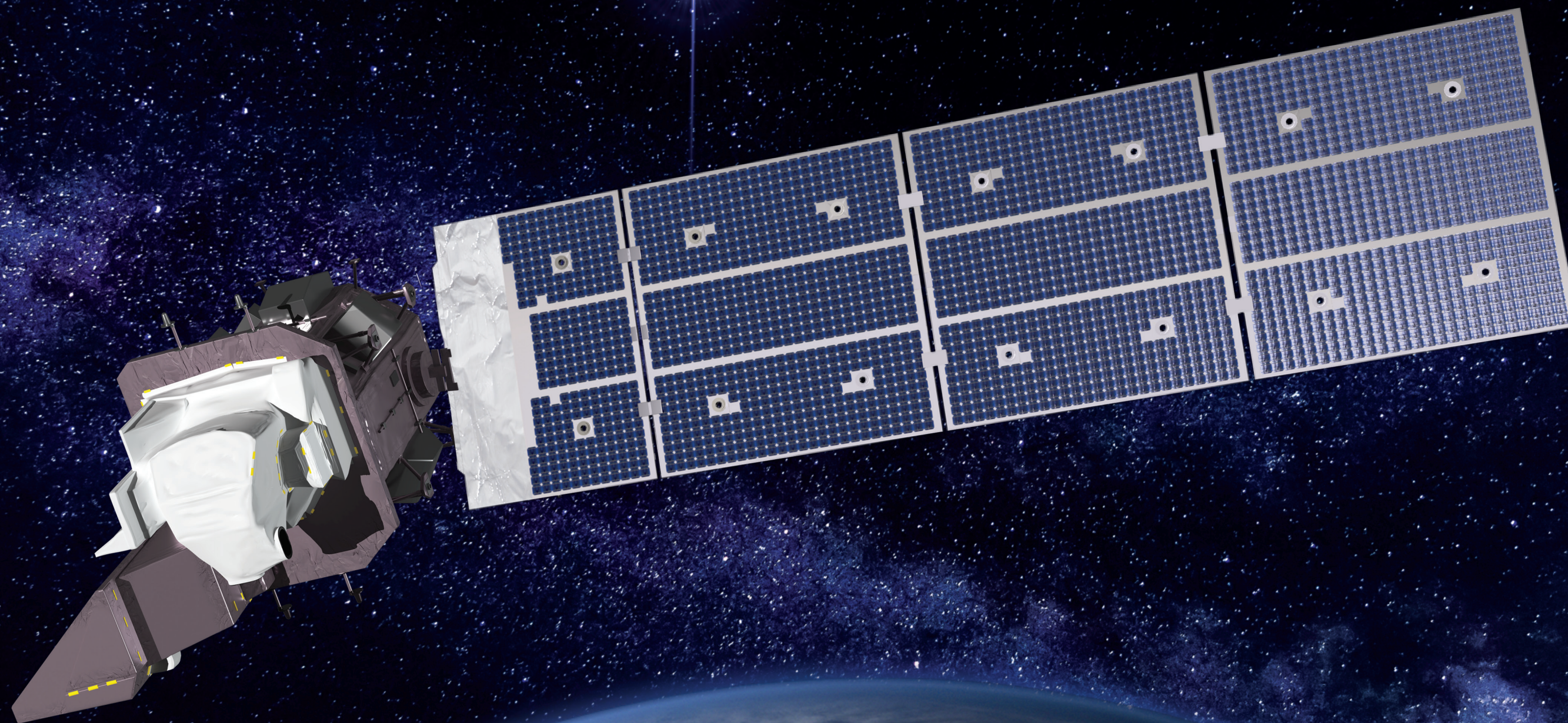
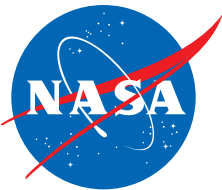


# LANDSAT 9

Eyes on a Changing Planet







# LANDSAT 9

## Eyes on a Changing Planet

The shifting ecosystems of our planet are visible from space. From orbit, we can watch farmland thrive and droughts parch the soil, flood waters rise and fall, volcanoes erupt and glaciers recede.

Speeding around Earth every 90 minutes, Landsat 9 will collect data that provide critical information on natural and human-made changes to the planet below. Landsat science is used to help manage farmland, forest and water resources; fight disease and pollution; allow responsible city growth; monitor climate change, and much more.

Landsat 9 will use two instruments to study our planet: the **Operational Land Imager 2 (OLI-2)** and the **Thermal Infrared Sensor 2 (TIRS-2)**. OLI-2 detects both visible and infrared light, allowing researchers to study urban centers, farmland, forests, coastal waters and more. TIRS-2 detects thermal infrared radiation, helping people track phenomena like wildfires and volcanic activity, and providing information on water evaporating into the air.

Landsat 9 is the latest in a series of Landsat satellites that have observed Earth’s surface for more than 40 years. Together, Landsat 9 and its predecessors provide an unbroken history of observations that help us understand transformations to our planet.

- Take an interactive tour of Landsat 9’s construction:  
<https://landsat.gsfc.nasa.gov/landsat-9/interactive/>
- Find out more about Landsat 9:  
<https://landsat.gsfc.nasa.gov/landsat-9/>
- Learn about the science of the Landsat mission:  
<https://landsat.gsfc.nasa.gov/>
- Explore a gallery of Landsat imagery:  
<https://landsat.visibleearth.nasa.gov/>

[landsat.gsfc.nasa.gov/landsat-9](https://landsat.gsfc.nasa.gov/landsat-9) • [usgs.gov](https://usgs.gov)

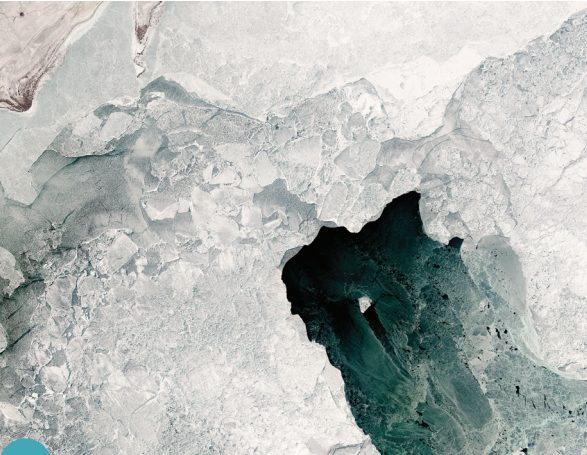


**Cover image:** The Landsat 9 observatory orbits Earth in this artist’s rendition; Landsat 9 will capture images of Earth’s surface from 438 miles (704 km) above the planet’s surface. The observatory will continuously collect data while completing an orbit of Earth every 90 minutes.

### MATCH THE LANDSAT IMAGES

#### Instructions

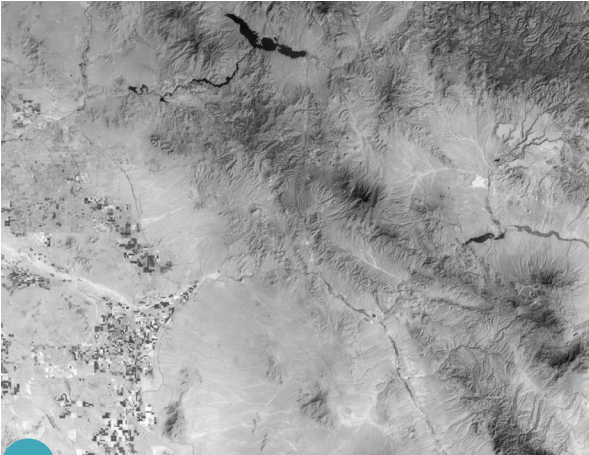
Below are visible and infrared images taken by Landsat 8, which is currently in orbit. Match the visible and infrared images to see how unique information is captured by viewing different wavelengths of light.



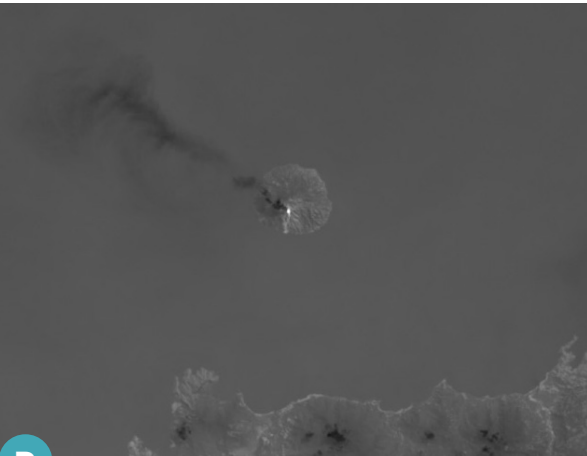
A



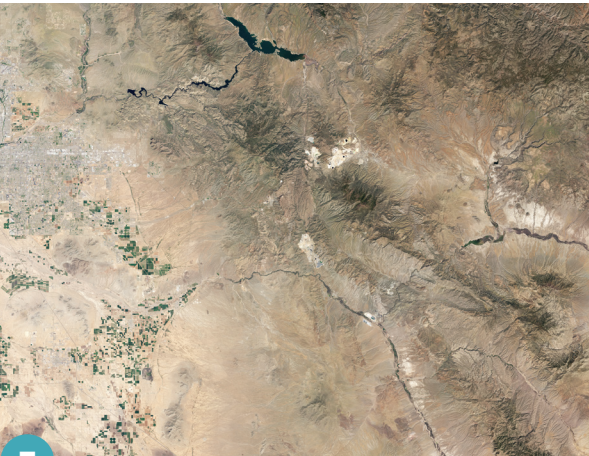
B



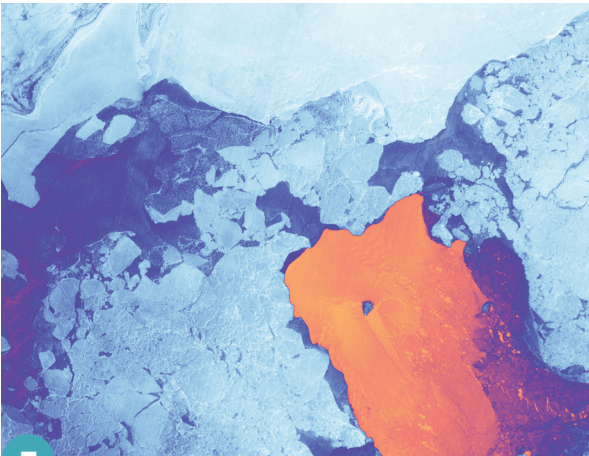
C



D



E



F

**Answers: A&F:** White sea ice contrasts with frigid blue waters in this visible-light picture of the Caspian Sea (A). In the infrared picture (F), orange indicates warmer areas — open water and thin ice — and blues and whites are colder areas, including the main ice pack. **E&C:** Phoenix, Arizona (E), is one of the hottest cities in the United States, but temperatures still vary across the area. In the infrared image (C), the hottest areas are lighter and cooler areas, darker. **B&D:** The Paluweh volcano spews ash in the visible light image (B). Infrared light travels through the ash (D) to reveal a bright hot spot where lava oozes near the top of the volcano. The ash plume is dark, indicating cooler temperatures compared to the water below.